If you are using a printed copy of this procedure, and not the on-screen version, then you <u>MUST</u> make sure the dates at the bottom of the printed copy and the on-screen version match.

The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.72.j LINAC Laser Interlock Systems Tests

C-A-OP	M Procedures in w	which this Attachmen	t is used.
4.120.72			
	Hand Proce	essed Changes	
HPC No.	<u>Date</u>	Page Nos.	<u>Initials</u>
	Approved:	Signature on F	ile
	Collid	ler-Accelerator Depa	rtment Chairman

V. Castillo

4.120.72.j LINAC Laser Interlock Systems Tests

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title:	Checksum:	
Division B Software Filename and Checksum: Title:	Checksum:	
Initial testing complete:		
Test Team Leader's Name (Print):	Life Number:	
Test Team Leader's Name (Sign):	Date://	
Acceptance test procedure complete (following repairs and retesting if required):		
Test Team Leader's Name (Print):	Life Number:	
Test Team Leader's Name (Sign):	Date:/	
Test results reviewed by:		
Safety Section Head's Name (Print):	Life Number:	
Safety Section Head's Name (Sign):	Date://	
Test results accepted by Radiation Safety Committee:		
RSC Member's Name (Print):	Life Number:	
RSC Member's Name (Sign):	Date: / /	

WARNING:

<u>The LINAC Laser Beam Output Must Be LOTO'ed By A Laser System Operator Prior To Entry Of The Laser Areas By Test Personnel</u>

1.1 Test of LINAC Laser Interlock System with laser OFF

VERIFY	LINAC Laser Beam Output is	LOTO'ed
CLOSE VERIFY STATION	Double Doors (DD) DD are One person in the Laser room	CLOSED
START	Timer / Laser Reset (T/LR) with ME8 key at encl 5874 outside laser room	
VERIFY VERIFY VERIFY	At encl 5874 Time Delay Light (TDL) is At encl 5874 Laser Enabled / Door Reset (LE/DR) light is At laser, Laser Ready amber light (LRAL) is	ON ON ON
WAIT VERIFY VERIFY VERIFY OPEN VERIFY VERIFY	10 secs TDL is LE/DR light is still LRAL is North DD LE/DR light is At laser, LRAL is	OFF ON ON OFF
CLOSE	North DD	
START VERIFY ENTER VERIFY VERIFY OPEN VERIFY VERIFY CLOSE	T/LR with ME8 key at encl 5874 TDL □ and LE/DR □ are DD in < 10 secs and close door Up to < 10 secs TDL is LE/DR light is still At laser, LRAL is North DD and hold open LE/DR light is At laser, LRAL is North DD	ON ON ON ON OFF
SETUP HOLD START	To test South DD with North DD closed South DD MS T/LR with ME8 key at encl 5874	CLOSED
VERIFY VERIFY VERIFY	At encl 5874 TDL is At encl 5874 LE/DR light is At laser, LRAL is	ON ON ON
WAIT VERIFY VERIFY VERIFY OPEN VERIFY	10 secs TDL is LE/DR light is still LRAL is South DD MS LE/DR light is	OFF ON ON

	VERIFY	At laser, LRAL is	OFF
	CLOSE	South DD microswitch (MS)	
	START	T/LR with ME8 key at encl 5874	
	VERIFY	TDL □ and LE/DR □ are	ON
	OPEN	South DD MS for < 10 secs then close South DD MS	
	VERIFY	Up to $< 10 \text{ secs } \mathbf{TDL}$ is	ON
	VERIFY	LE/DR light is still	ON
	VERIFY	At laser, LRAL is	ON
	OPEN	Left DD MS and hold open	
	VERIFY	LE/DR light is	OFF
	VERIFY	At laser, LRAL is	OFF
	CLOSE	South DD	
	START	T/LR with Push Button (PB) at encl 5875 inside laser room	
	VERIFY	At encl 5875 TDL is	ON
	VERIFY	At encl 5875 LE/DR light is	ON
	VERIFY	At laser, LRAL is	ON
	WAIT	10 secs	
	VERIFY	TDL is	OFF
	VERIFY	LE/DR light is still	ON
	VERIFY	LRAL is	ON
	OPEN	North DD	
	VERIFY	LE/DR light is	OFF
	VERIFY	At laser, LRAL is	OFF
	CLOSE	North DD	
	START	T/LR with PB at encl 5875	
	VERIFY	TDL □ and LE/DR □ are	ON
_	EXIT	North DD in < 10 secs and close door	
	VERIFY	Up to < 10 secs TDL is	ON
	VERIFY	LE/DR light is still	ON
	VERIFY	At laser, LRAL is	ON
	OPEN	North DD and hold open	
	VERIFY	LE/DR light is	OFF
	VERIFY	At laser, LRAL is	OFF
	CLOSE	North DD	
	SETUP	To test South DD with North DD closed	
	HOLD	South DD MS	CLOSED
	START	T/LR with Push Button (PB) at encl 5875 inside laser room	
	VERIFY	At encl 5875 TDL is	ON
	VERIFY	At encl 5875 LE/DR light is	ON
	VERIFY	At laser, LRAL is	ON
			011
_	WAIT	10 secs	OFF
	VERIFY	TDL is	OFF
	VERIFY	LE/DR light is still	ON ON
	VERIFY	LRAL is	ON
	OPEN VERIFY	South DD MS	OFF
	VERIFY VERIFY	LE/DR light is At laser, LRAL is	OFF
_			
C-A-OPI	M-ATT 4.12	0.72.j(Y) 4	Revision 01
			August 23, 2006

	CLOSE	South DD MS	
	START	T/LR with PB at encl 5875	
	VERIFY	TDL □ and LE/DR □ are	ON
	OPEN	South DD MS for < 10 secs then close South DD MS	OIV
	VERIFY	Up to < 10 secs TDL is	ON
	VERIFY	LE/DR light is still	ON
	VERIFY	At laser, LRAL is	ON
	OPEN	South DD MS and hold open	OIV
	VERIFY	LE/DR light is	OFF
	VERIFY	At laser, LRAL is	OFF
	CLOSE	DD	OH
	Check for acc	eptance of Test of LINAC Laser Interlock System with laser OF	FF
1.2	Test of LINA	.C Laser Interlock System with laser ON	
		•	
	START	T/LR with ME8 key at encl 5874	
	VERIFY	At encl 5874 TDL is	ON
	VERIFY	At encl 5874 LE/DR light is	ON
	VERIFY	At laser, LRAL is	ON
	HAVE	Operator Turn ON LINAC Laser	
	VERIFY	LINAC Laser Pulsing Light Indicator (PLI) is	ON
	OPEN	North DD from inside for > 10secs, keeping the South DD closed	
	VERIFY	LE/DR light is	OFF
	VERIFY	At laser, LRAL is	OFF
	VERIFY	LINAC Laser PLI is	OFF
	VERIFY	Attempt to turn ON LINAC Laser	FAIL
	CLOSE	North DD	TILL
	CLOSE		
	VERIFY	At laser, LRAL is	OFF
	VERIFY	Attempt to turn ON LINAC Laser	FAIL
	SETUP	To test South DD with North DD closed	
	HOLD	South DD MS	CLOSED
	START	T/LR with ME8 key at encl 5874	
	VERIFY	At laser, LRAL is	ON
	TI A X/E	Operator Trum ON LINIAC Legen	
	HAVE VERIFY	Operator Turn ON LINAC Laser LINAC Laser PLI is	ON
	VERIF I	LINAC Lasei I LI is	ON
	OPEN	South DD MS and hold open >10 secs	
	VERIFY	LE/DR light is	OFF
	VERIFY	At laser, LRAL is	OFF
	VERIFY	LINAC Laser is	OFF
	VERIFY	Attempt to turn ON LINAC Laser	FAIL
J	CLOSE	South DD MS and hold closed	
	VERIFY	At laser, LRAL is	OFF
C-A-OP	M-ATT 4.12	0.72.i(Y) 5	Revision 01
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	VERIFY	Attempt to turn ON LINAC Laser	FAIL
	START	T/LR with PB at encl 5875	
	VERIFY	At encl 5875 TDL □ and LE/DR □ are	ON
	VERIFY VERIFY	At laser, LRAL is Attempt to turn ON LINAC Laser	ON SUCCESSFUL
	Turn OFF	LINAC laser	
	VERIFY	LINAC Laser is	OFF
	Check for ac	ceptance of Test of LINAC Laser Interlock System with laser ON	
		END OF TEST PROCEDURE	
TTL: Sign	n for completio	on of initial testing:	
		Date://_	
			
TTI . Cim	o for completion	on of final testing:	
i i L. sigi	rior compleus	on or rinar testing.	
		Date: //	